

## REMARKS

Several paragraphs of the specification have been amended to correct minor typographical errors and to include appropriate reference numbers from the drawings. In particular, the paragraph beginning on page 7, line 5, which was previously amended in the Amendment and Response filed April 15, 2004, has been further amended to include reference number 12 corresponding to the silicon dioxide layer in Fig. 1. Similarly, the paragraph beginning at page 8, line 3 has been amended to include reference numbers for the “silicon substrate” and “silicon dioxide layer” of Fig. 1. Finally, the paragraphs beginning on page 7, line 15 and the paragraph spanning pages 12 and 13, which were both previously amended, have been further amended to remove errant dashes from those paragraphs.

Turning to the claims, claims 1-11, 18, 20, 22-30, 33-39, and 41-46 remain in this application. Claims 12-17, 19, 21, 31, 32, and 40 have been canceled without prejudice to further prosecution in a continuing application.

Of the pending claims, claims 1-11, 20, 22-30, and 34-39 are allowed, and claim 41 has been objected to as being dependent upon a rejected base claim. Claim 41 has now been rewritten in independent form, and thus should be allowable. Further, claims 8 and 33 have been amended to correct minor typographical errors introduced in the Amendment filed April 15, 2004, and Claims 42-46 have been amended to depend from claim 41.

The various claim rejections will now be addressed in the order raised in the Office Action.

**The 35 U.S.C. § 102 Rejections**

Claim 15 stands rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Najafi et al.'s September 1998 Journal of Lightwave Technology article (Ref. AN in the Information Disclosure Statement filed August 19, 2002). As claim 15 has been canceled to expedite the prosecution of the present application, Applicant respectfully submits that this rejection is now moot and should be withdrawn.

**The 35 U.S.C. § 103 Rejections**

Claims 16-18, 33, 40, and 42-46 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Najafi et al. Applicant respectfully submits that the cancellation of claims 16-17, and 40 render the § 103 rejection moot as to those claims. With respect to the remaining claims, Applicant respectfully traverses.

Claim 18 depends from allowed claim 1. In view of the allowance of claim 1, claim 18 should also be allowable.

Independent claim 33 claims an integrated optic device having a spatially varying refractive index profile. The device comprises a substrate and a photosensitive sol-gel derived film on the substrate. Further, the sol-gel film includes a spatially varied refractive index profile and is formed by a process comprising i.) forming a photosensitive sol-gel film on the substrate, ii.) exposing the photosensitive sol-gel film through a gray scale mask to light, wherein the gray scale mask includes a gray scale image corresponding to the integrated optic device, and iii.) heat treating the exposed sol-gel film. Nowhere does Najafi, et al., teach or suggest the use of a gray scale mask to obtain a spatially varying refractive index profile in a photosensitive sol-gel film. Rather, Najafi, et al.,

merely teaches the use of fused silica photo masks and phase masks, neither of which is a gray scale mask. Nor is there any motivation taught within Najafi, et al., for using a gray scale mask, as the sol-gel film layers taught in Najafi, et al., are imprinted using a uniform amount of light exposure to form the desired waveguide since the unexposed regions are dissolved using an organic solvent. Najafi, et al., therefore, teaches using a uniform exposure for all exposed regions and, thus, the rejection of claim 33 over Najafi, et al., should be withdrawn. .

Claims 42-46 have been made to depend from independent claim 41. The Examiner has indicated that claim 41 would be allowed if rewritten in independent form, which Applicant has done. Accordingly, claims 42-46 should now be allowable.

### CONCLUSION


In view of the foregoing, reconsideration and allowance of this application are earnestly solicited.

Respectfully submitted,

JONES DAY

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By:

  
David A. Randall  
Reg. No. 37,217

555 West Fifth Street, Suite 4600  
Los Angeles, California 90013-1025  
Telephone: (213) 489-3939  
Facsimile: (213) 243-2539